UNITED STATES PATENT AND TRADEMARK OFFICE

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DUKE W. YEE
YEE & ASSOCIATES, P.C.
P.O. BOX 802333
DALLAS, TX 75380

EXAMINER
DISTEFANO, GREGORY A

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2008*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

     4a) Of the above claim(s) *10,21 and 31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11-20 and 22-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date *4/18/2007, 10/16/2003*.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

1.   This action is in response to the amendment filed on 2/19/2008.

2.   Claims 1-9, 11-20, and 22-30 are currently pending.

Election/Restrictions

3.   Claims 10, 21 and 31 are withdrawn from further consideration pursuant to 37

CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable

generic or linking claim. Election was made **without** traverse in the reply filed on

2/19/2008.

Claim Rejections - 35 USC § 101

4.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

5.   Claims 12-20 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. The claims are directed to a "data processing

system" which may be interpreted to be purely software and the following "means" to be

components of that software. Computer software fails to meet the 35 U.S.C. 101

requirement that the invention be a "process, machine, manufacture, or composition of

matter".

6.   Claims 22-30 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. The claims are directed to "a computer

program product in a computer readable medium". The "computer readable medium"

may be interpreted to be an electrical signal, or other such intangible example, carrying

thereon a computer program. Such forms of intangible media fail to meet the 35 U.S.C.

101 requirement that the invention be a "process, machine, manufacture, or

composition of matter".

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 1-3, 6-8, 11-14, 17-19, 22-24, and 27-29 are rejected under 35 U.S.C.

103(a) as being unpatentable over Touboul (US 6,125,390), in view of Agarwal (US

6,305,010).

9.   As per claims 1, 11, 12, and 22, Touboul teaches the following:

monitoring operation of the program, (column 7, line 40), i.e. the agent 14

monitors the applications;

determining whether an error has occurred based on the comparison, (column 7,

lines 41-42), i.e. when an interrupt is generated, hooks or traps that interrupt and

determines if there is an error condition. If so, the error is recorded as an alert which is

reported to the monitor 2;

responsive to an occurrence of the error, obtaining a solution for the error, (column 7, lines 44-46), i.e. the alert is sent by the agent to the monitor 2 and includes identification of <u>the type of problem</u>, the workstation on which it occurred, the name of the program which caused the error, and <u>a recommended corrective action</u>; and

implementing the solution when the solution is obtained, (column 8, lines 58-64), i.e. one trigger is the function which is stored in a trigger library and can be called by the monitor 2 to be executed automatically as part of a procedure. The triggers <u>can be called automatically</u> in two cases, either <u>in a correction procedure executed in response to an alert</u> or in a scheduled procedure executed at a desired time as set up by the scheduling module 900.

The examiner would like to further note Touboul's showing of Tables 2 and 3 in column 9 of their description which gives two possible lists of solutions for certain errors which may occur.

However, Touboul does not explicitly teach a method where errors are detected by comparing an actual output with an expected output. Agarwal teaches the following:

comparing an observed operation of the program with an expected operation of the program to form a comparison, (abstract), i.e. a type mismatch problem in computer programs is said to occur <u>when there is a mismatch between</u> the form or classification of <u>a value encountered **during** program execution and that **anticipated** by the program</u>.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the error detection method of Touboul with the comparison method of Agarwal. One of ordinary skill in the art would have been

motivated to have made such modifications because both Touboul and Agarwal are analogous art in the field of error detection. Furthermore, Touboul teaches in column 7, lines 41-42, that "when an interrupt is generated, hooks or traps that interrupt and determines if there is an error condition. If so, the error is recorded as an alert which is reported to the monitor 2". Therefore, Touboul describes a desire to detect errors in an operating program where Agarwal teaches such a detection method. Thus, it would have been obvious to have utilized the detection through comparison method of Agarwal in the error determination method of Touboul.

10.   Regarding claims 2, 13, and 23, modified Touboul teaches the method of claims 1, 12, and 22 as described above. Touboul further teaches the following:

the obtaining step comprises:

sending the analysis to a remote server with a request for the solution, (column 7, lines 44-46), i.e. the alert is sent by the agent to the monitor 2 and includes identification of the type of problem, the workstation on which it occurred, the name of the program which caused the error, and a recommended corrective action; and

receiving the solution in response the request, (column 14, 32-35), i.e. the procedures manager module 54 takes the output from the event views module 600 and the scheduling module 900 and chooses one or more of the procedures to be sent to the manager 4 that are associated with a schedule or selected event views in response to an alert.

However, while Touboul does teach of sending an alert to the monitor, Touboul

does not explicitly teach of their method of analyzing an error to determine and analysis.

Agarwal teaches the following:

automatically executing a process to analyze the error to obtain an analysis,

(abstract), i.e. a method for repairing or <u>testing for many type mismatch problems</u> in

programs works by transforming a binary representation of the program into a new

binary <u>in which the problem is</u> fixed or <u>identified</u>.

11.   Regarding claims 3, 14, and 24, modified Touboul teaches the method of claims

1, 12, and 22 as described above. Touboul further teaches the following:

the solution is at least one of a replacement executable file, a dynamic link

library, <u>a patch</u>, and a script, (abstract), i.e. a method for repairing or testing for many

type mismatch problems in programs works by <u>transforming a binary representation of</u>

<u>the program into a new binary</u> in which the problem is fixed or identified.

12.   Regarding claims 6, 17, and 27, modified Touboul teaches the method of claims

1, 12, and 22 as described above. Touboul further teaches the following:

the monitoring step, the comparing step, the determining step, obtaining step,

and the implementing step are implemented in an agent process, (abstract), i.e. the

network includes <u>at least one agent module</u> resident on each of the at least two

workstations and a management console connected to each of the at least two

workstations.

13.   Regarding claims 7, 18, and 28, modified Touboul teaches the method of claims

1, 12, and 22 as described above. Touboul further teaches the following:

  the monitoring step is initiated in response to an event, (column 7, lines 41-42),

i.e. <u>when an interrupt is generated</u>, hooks or traps that interrupt and determines if there

is an error condition. If so, the error is recorded as an alert which is reported to the

monitor 2. The examiner interprets this teaching of Touboul to encompass applicant's

claim in that Touboul's agent 14 must analyze the interrupt to determine if it is an error.

In order to accomplish this it would have been clear to compare the interrupt with known

errors and normal operating interrupts.

14.   Regarding claims 8, 19, and 29, modified Touboul teaches the method of claims

7, 18 and 28, as described above. Touboul further teaches the following:

  the event is a periodic event, (column 8, lines 15-18), i.e. monitor 2 may also

communicate a request to the manager 4 for an action to be taken on the agent 14

when the schedule 9 <u>indicates that a specific time has arrived</u> for performing a

procedure.

15.   Claims 4, 5, 15, 16, 25, and 26 are rejected under 35 U.S.C. 103(a) as being

unpatentable over modified Touboul as applied to claims 1, 12, and 22 above, and

further in view of Yoshida (JP 09171460 A).

16.   Regarding claims 4, 15, and 25, modified Touboul teaches the method of claims

1, 12, and 22 as described above. However, neither Touboul nor Agarwal explicitly

teach a method where the expected values are stored in a database. Yoshida teaches

the following:

the expected operation is stored in a database, (abstract, solution), a knowledge

base 1c stores the operation specification when a program is normal.

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to have further modified the error detection method of Touboul with

the database of expected operation of Yoshida. One of ordinary skill in the art would

have been motivated to have made such further modifications because both Touboul

and Yoshida are analogous art in the field of detecting errors in the operation of a

computer program. Furthermore, Agarwal teaches in column 8, lines 33-59, a method

of utilizing databases in order to associate old binary instructions with new ones, thus

showing a desire to utilize databases in the art.

17.   Regarding claims 5, 16, and 26, modified Touboul teaches the method of claims

4, 15, and 25 as described above. Yoshida further teaches the following:

the database is located on the data processing system, (pg. 2, paragraph

[0009]), i.e. drawing 1 is a lineblock diagram of the computer system using this

invention, (pg. 2, paragraph [0011]), i.e. the knowledge base 1c is a database on the

computer which memorizes operation of a program in case there are operation of the

program at the time of being infected with operation specification, a virus program, etc.

18.   Claims 9, 20, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over modified Touboul as applied to claims 1, 12, and 22 above, and further in view of Cantey et al. (US 5,907,709), hereinafter Cantey.

19.   Regarding claims 9, 20, and 30, modified Touboul teaches the method of claims 1, 12, and 22 as described above. However, neither Touboul nor Agarwal explicitly teach a method where the expected values are identified during compilation of the program. Cantey teaches the following:

the expected operation is identified during compiling of the program, (column 3, lines 32-35), i.e. operation of the compiler is altered to insert calls from the user code to the CodeGuard Runtime Library, for checking runtime use of resources and memory.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the error detection method of Touboul with the compile time operation identification of Cantey. One of ordinary skill in the art would have been motivated to have made such further modifications because both Touboul and Cantey are analogous art in the field of error detection in the operation of a program. Furthermore, Agarwal teaches a method of identifying type mismatch errors (abstract) and Cantey teaches of a similar method in column 4, lines 2-17, where they discuss the compiler storing a database of data descriptors which can be utilized to determine legal operations for the individual data members.

Conclusion

20.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure:

-Hosaka et al. (US 4,956,807), watchdog timer.

-Adelson et al. (US 5,339,261), system for operating application software in a

safety critical environment.

-Kimmerly et al. (US 5,628,017), method and system for providing event-

response capabilities to pseudocode.

-Proulx (US 5,666,368), system and method for testing the operation of registers

in digital electronic systems

-Rivin et al. (US 6,718,286), non-intrusive application code profiling method and

apparatus.

-Hashimoto et al. (US 7,107,488), electronic control unit including monitoring

control circuit.

-Wenisch (US 7,162,714), software-based watchdog method and apparatus.

-Hikita (JP 05298204 A), test circuit for input/output processor.

-Luchin et al. (SU 1737455 A2), computer program execution monitor has output

of operation code register connected to data input of first AND= gates unit at first input

gp of first and second comparators.

21.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to GREGORY A. DISTEFANO whose telephone number is

(571)270-1644. The examiner can normally be reached on 9:00am-5:00pm Mon.-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Doug Hutton can be reached on (571)272-4137. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gregory A DiStefano/
Examiner, Art Unit 2176
5/17/2008

                                                                        /Rachna S Desai/
                                                         Primary Examiner, Art Unit 2176